

REMARKS

Claims 1-8 are pending in the above-identified application, and were rejected. Claims 9-17 were withdrawn from consideration. With this Amendment, claims 4-8 were amended, and claims 1-3 were cancelled. Accordingly, claims 4-8 are at issue.

I. 35 U.S.C. § 112 Indefiniteness Rejection of Claims

Claim 1 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 has been cancelled. Accordingly, Applicant respectfully requests withdrawal of this rejection.

II. 35 U.S.C. § 102 Anticipation Rejection of Claims

Claims 1, 3 and 5-8 were rejected under 35 U.S.C. § 102(b) as being anticipated by Mukainakano (U.S. Patent No. 6,150,797). Applicant respectfully traverses this rejection.

Claims 1-3 have been cancelled, and claims 5-8 have been amended to depend from claim 4. Accordingly, Applicant respectfully requests withdrawal of this rejection.

III. 35 U.S.C. § 103 Obviousness Rejection of Claims

Claims 2 and 4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mukainakano (U.S. Patent No. 6,150,797) in view of Freedman (U.S. Patent No. 6,242,893). Applicant respectfully traverses this rejection.

Claim 4 is directed to a battery pack including at least a battery cell and a protection circuit for shutting off overcurrent discharge. The protection circuit comprises shut-off holding means and a detector for detecting voltage between an external plus terminal and the external minus terminal. The shut-off holding means is connected between a battery cell positive

terminal and an external minus terminal. Claim 4 has been amended to specify that the shut-off holding means comprises a resistor block of resistance larger than 1 k Ω and smaller than 200 k Ω . No new matter has been added by this amendment because the specification at page 16, lines 30-31 discloses this limitation. Abnormal discharge by shorting or connecting a low resistance between the external plus terminal and the external minus terminal of the battery pack is shut off, where the discharge shut-off is maintained by the shut-off holding means.

Mukainakano is directed to a chargeable power supply unit that includes a secondary cell 101 connected to external terminal 105 through sensing resistors 121, 123 and a switch circuit 103. (See col. 3, lines 51-55). Charge and discharge control circuit 102 detects voltage across the secondary cell 101, and comprises an over-charge detection circuit 116, an over-discharge detecting circuit 115, and an over-current detecting circuit 114. (See col. 3, lines 56-61). In an over-discharge state, the output control circuit 117 causes the gate voltage of the FET 112 of the switch circuit to change from HIGH to LOW based on the output of the over-discharge detecting circuit 115. (See col. 4, lines 12-30). This stops the discharge. (See col. 4, lines 27-30).

The Examiner claims that load 109 in Mukainakano corresponds to the shut-off holding means. However, as discussed above, in Mukainakano, the output control circuit 117 shuts off the discharge based on a signal from the over-discharge detecting circuit 115. Thus, Mukainakano does not disclose or suggest shut-off holding means connected between a battery cell positive terminal and an external minus terminal where abnormal discharge by shorting or connecting a low resistance between the external plus terminal and the external minus terminal of the battery pack is shut off, and such discharge shut-off is maintained by the shut-off holding

means, as required by claim 4. In addition, Mukainakano does not disclose or suggest a shut-off holding means having a resistance of larger than 1 k Ω and smaller than 200 k Ω .

Freedman discloses a safety circuit for lithium-ion and lithium polymer cells. In Freedman, the resistor R5 has a value of 2.61 k Ω , which is not larger than 1 k Ω and smaller than 200 k Ω , as required by claim 4. Moreover, Freedman fails to disclose or suggest a shut-off holding means comprising a resistor connected between a battery cell positive terminal and an external minus terminal. Rather, the resistor R5 in Freedman is part of a voltage divider. (See col. 4, lines 47-50). It is not permissible to pick and choose among the individual elements of assorted prior art references to re-create the claimed invention, but rather "some teaching or suggestion in the references to support their use in the particular claimed combination" is needed. *Symbol Technologies, Inc. v. Opticon, Inc.*, 935 F.2d at 1576, applying *SmithKline Diagnostics, Inc. v. Helena Laboratories Corp.*, 859 F.2d at 887. Thus, the Examiner cannot use any resistor from the safety circuit of Freedman in place of the resistor in Mukainakano to derive claim 4 without showing that some objective teaching in the prior art, or that knowledge generally available to one of ordinary skill in the art, would lead one to combine the relevant teachings of the references. In this case, there is no teaching or suggestion in the prior art that would lead to the combination suggested by the Examiner.


For all of the reasons set forth above, it would not have been obvious to replace the load in Mukainakano with one of the resistors used in the circuit of Freedman to derive claim 4, or claims 5-8 that depend from claim 4. Claim 2 has been cancelled. Accordingly, Applicant respectfully requests withdrawal of this rejection.

IV. Conclusion

In view of the above amendments and remarks, Applicant submits that all claims are clearly allowable over the cited prior art, and respectfully requests early and favorable notification to that effect.

Respectfully submitted,

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By: 

Marina N. Saito
Registration No. 42,121
SONNENSCHNEIN NATH & ROSENTHAL LLP
P.O. Box 061080
Wacker Drive Station, Sears Tower
Chicago, Illinois 60606-1080
(312) 876-8000